

WHAT IS CLAIMED IS:

1 1. A beam-guiding optical device in an optical head device to bring beams of different
2 wavelengths which are emitted by separate light sources together onto the same optical axis
3 or to guide said beams onto a common photo receiving device, comprising:

4 an incident plane; and

5 an exit plane, said incident plane and exit plane being back to back wherein one of the
6 incident plane and the exit plane has a stair-like surface;

7 wherein a step height between neighboring treads in said stair-like surface is set to
8 cause a phase difference of n wavelength to one of said beams passing through said
9 neighboring treads and n is equal to 1, 2, 3

10 2. The beam-guiding optical device of Claim 1 wherein said treads are curved.

11 3. The beam-guiding optical device of Claim 1 wherein said treads are formed
12 concentrically

13 4. An optical head device having said beam-guiding optical device of Claim 1,
14 comprising:

15 a first light source for emitting a first beam of light;

16 a second light source for emitting a second beam of light which differs in wavelength
17 from said first beam of light;

18 an objective lens for converging said first and second beams of light onto a recording
19 surface of an optical recording medium; and

20 a common photo receiving device for receiving said first and second beams of light
21 which are reflected from said recording surface of said optical recording medium through
22 said objective lens;

11 wherein said beam-guiding optical device is placed on an optical path between said objective
12 lens and said common photo receiving device to deflect one of said first and second beams of
13 light that have been reflected from said recording surface of said optical recording medium
14 and to guide both of said first and second beams of light onto said common photo receiving
15 device.

1 5. The optical head device of Claim 4 wherein said first and second light sources are
2 stored in a single package as a light source unit.

1 6. An optical head device having said beam-guiding optical device of Claim 1,
2 comprising:

3 a first light source for emitting a first beam of light;

4 a second light source for emitting a second beam of light which differs in wavelength
5 from said first beam;

6 an objective lens for converging said first and second beams of light onto a recording
7 surface of an optical recording medium; and

8 a common photo receiving device for receiving said first and second beams of light
9 that are reflected from said recording surface of said optical recording medium through said
10 objective lens;

11 wherein said beam-guiding optical device is placed on an optical path between said first and
12 second light sources and said objective lens to bring said first and second beams of light
13 together onto the same optical axis and to guide them to said objective lens.

1 7. The optical head device of Claim 6 wherein said first and second light sources are
2 stored in a single package as a light source unit.